Combined caBIG® Tools as a Solution for Translational Research

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caBIG® Tools:
Solutions for Translational Research

- Our institution
- Overall vision
- What we have implemented
- Techniques used to move forward
- Specific research initiatives

Who We Are

The University of Arkansas for Medical Sciences (UAMS)
is part of the University of Arkansas system

- The flagship campus (Univ. of Arkansas) is located in the Northwest corner of the state
- UAMS is located in Little Rock which is in the center of the state and also home of the state capitol.
- UAMS is the sole medical school for the Arkansas
- The UAMS campus is a health sciences campus with six Colleges: Medicine, Pharmacy, Nursing, Public Health, Health Related Professions, and Graduate Studies. Interwoven into the Colleges are six Institutes: Cancer, Aging, Psychiatry, Myeloma, Eye, and Spine & Neurosciences.

Who We Are

The University of Arkansas for Medical Sciences (UAMS)

- UAMS recently established a satellite medical school, and also operates 8 Area Health Education Centers (AHECs) and 6 satellite Aging Clinics dispersed throughout the state.
- On 07/14/2009 UAMS was awarded a nearly $20 million NIH CTSA grant, based upon its strength in telemedicine and community programs, amongst other initiatives.

Who We Are

- The Winthrop P. Rockefeller Cancer Institute at UAMS
  - The Rockefeller Cancer Institute opened in 1989 as the Arkansas Cancer Research Center. In 2004 it was proclaimed as the official cancer institute for the state of Arkansas by then Governor Mike Huckabee.
  - The Cancer Institute's first tower, named in honor of Willard & Pat Walker, was constructed in 2 stages and was fully complete in 1994. It included both outpatient clinical space as well as clinical and bench research space.
  - By 2004, it was decided that an expansion tower would be needed.

Who We Are

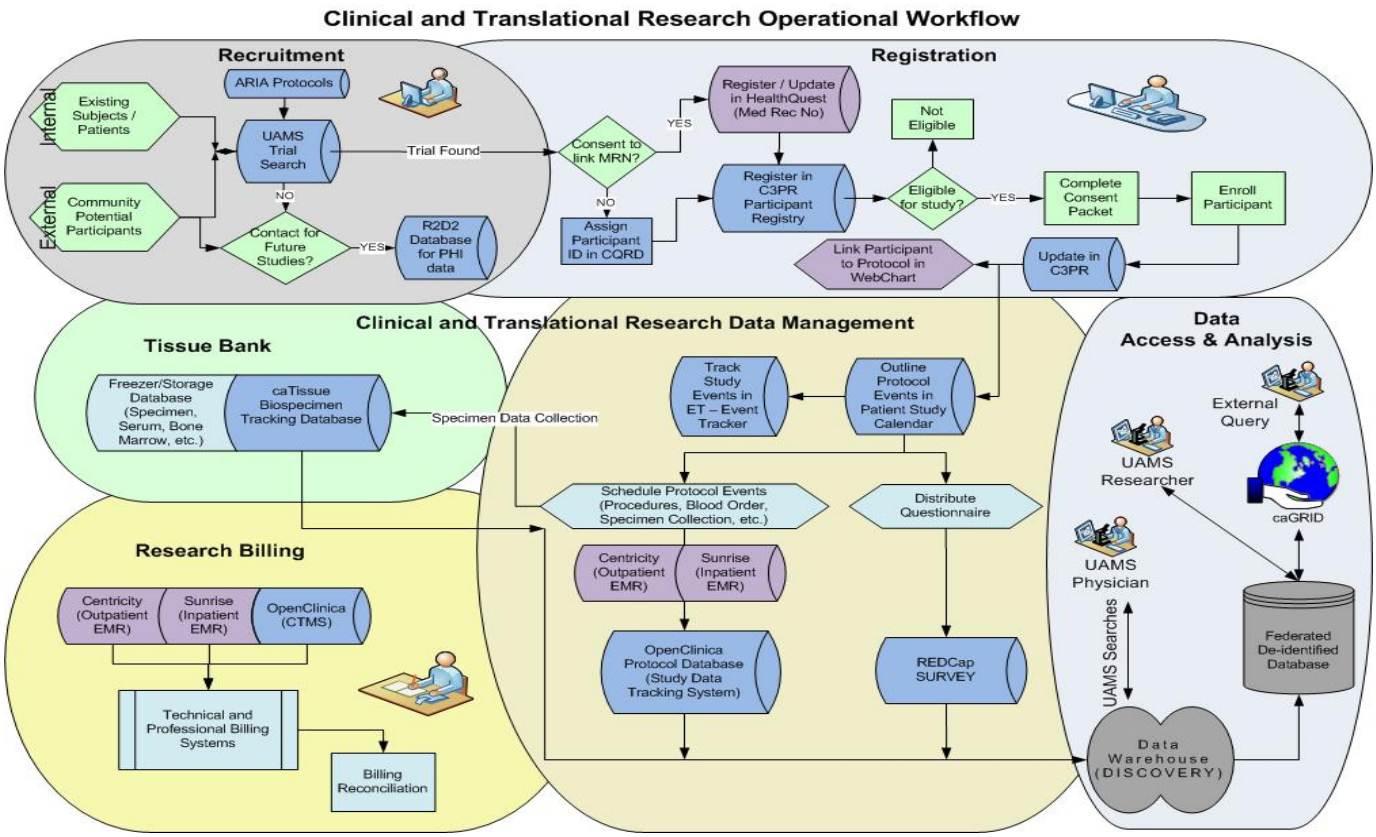
- The Winthrop P. Rockefeller Cancer Institute at UAMS
  - In 2007, ground was broken for building a 12-story 350,000 sq ft expansion tower, which is twice the size of the Walker Tower. The new tower adjoins the Walker Tower such that the two towers will work as one. The first phase was completed in the summer of 2010.
  - Also in 2007, the Cancer Institute adopted the name Winthrop P. Rockefeller. Winthrop Rockefeller was one of John D. Rockefeller, Jr.'s five sons and served as Arkansas Governor from1967-1971 before succumbing to pancreatic cancer. Winthrop P. Rockefeller was Winthrop's only child and served as Lieutenant Governor of Arkansas for 10 years before dying of a blood cancer in 2006.

Who We Are

- Some of the strengths of the Rockefeller Cancer Institute at UAMS include: molecular epidemiology, cancer control, disparities, bone metastases, multiple myeloma, immunotherapy, behavioral oncology, radiation injury and radiation biology, and laser detection of circulating tumor cells.

Who We Are

Vision



Vision

- System that would facilitate
  - Recruitment
  - Registration
  - Trial management (therapeutic and other)
    - Regulatory
    - Data
      - Adverse events
    - Tissue
    - Biologic information
    - Billing

Vision

- Integrated
  - Allow the maximal use of data
  - Connect clinical information to biologic data
- Expandable
  - Unite Area Health Education Centers
  - Community research
- Flexible
  - Epidemiologic, therapeutic, translational
- Affordable for our rural partners

caBIG®Tools:

Solutions for Translational Research

- At the beginning
  - No central support
  - Each researcher built their own
  - Problems escalated
- Back-up
- Security
- Began with ARIA for IRB support

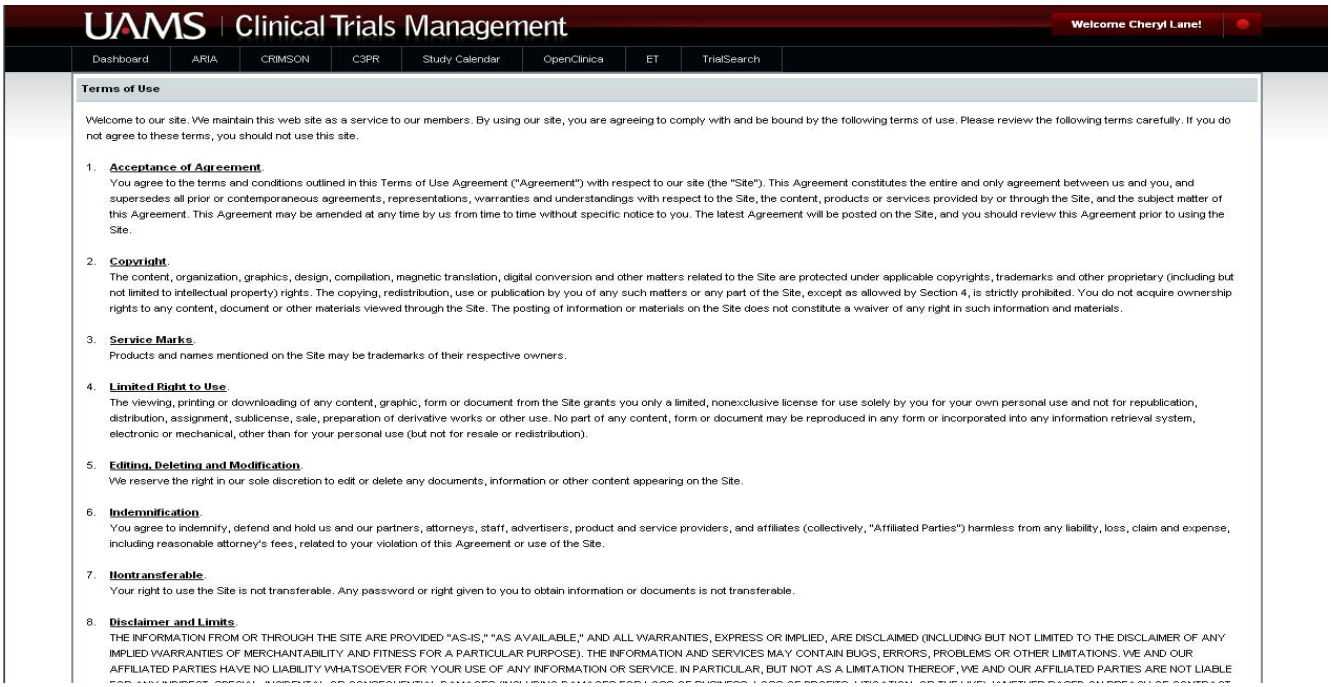
Clinical Trials Management Dashboard

- Crimson
- ARIA
- caBIG® Cancer Central Clinical Participant Registry (C3PR)
- caBIG® Patient Study Calendar
- OpenClinica
- Trial Search
- Event Tracker

UAMS Single Sign-On

- Single sign-on
- Future enhancement to provide secure access by outside users
- Domain Username and Password

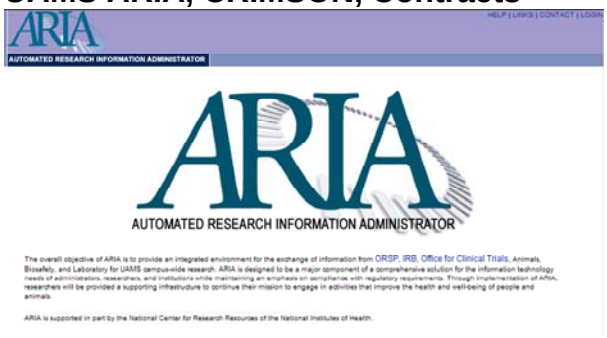
UAMS Dashboard

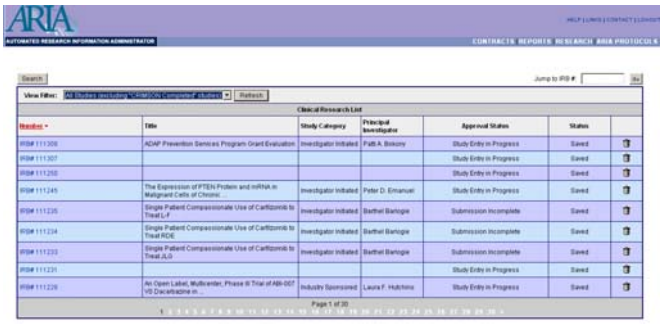


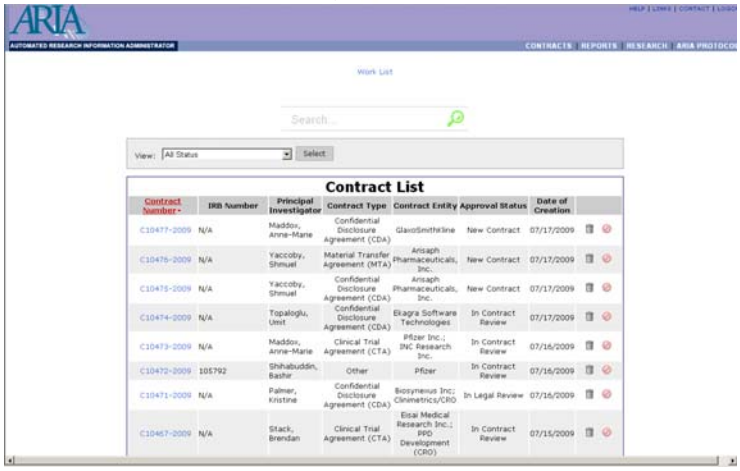
Regulatory Applications

- Crimson: Budget building tool
- Aria: IRB management
- Event Tracker: Tracks the life of the protocol and sends reminders to staff

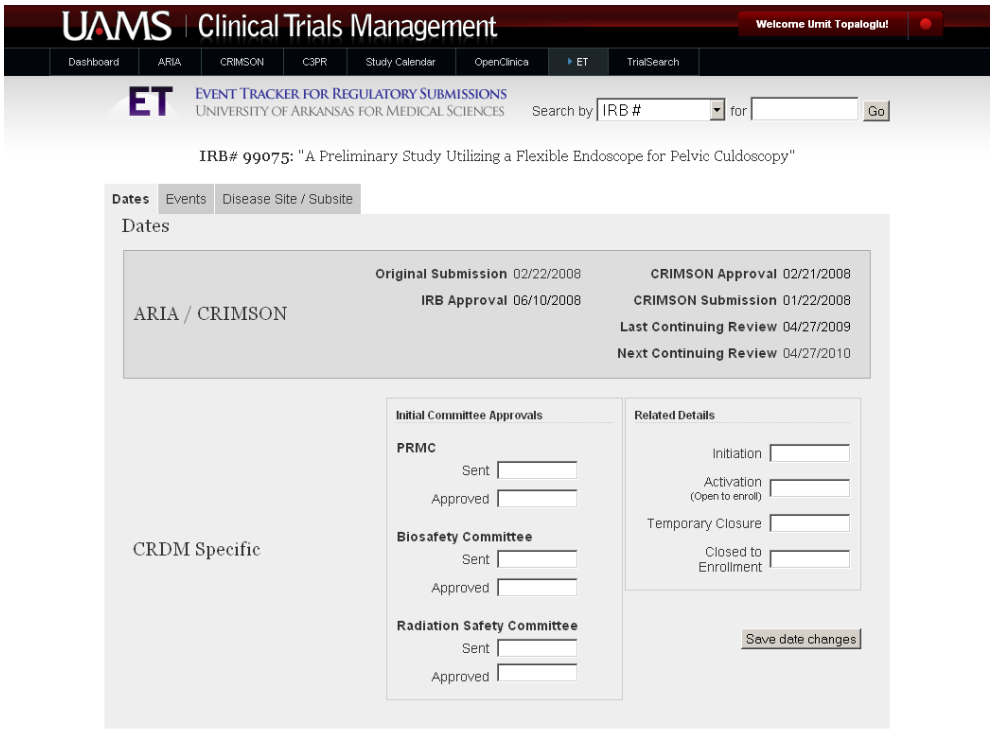
UAMS ARIA, CRIMSON, Contracts







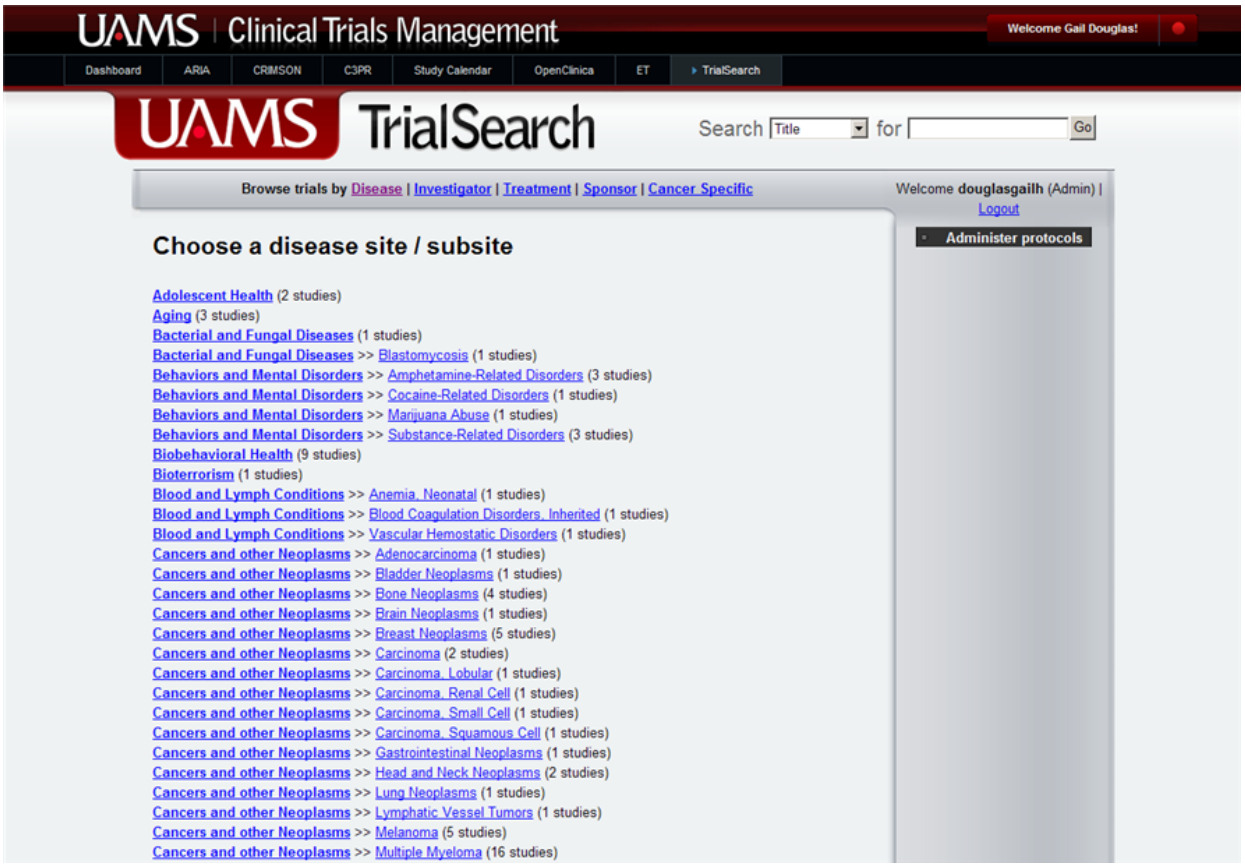
UAMS Event Tracker (ET)



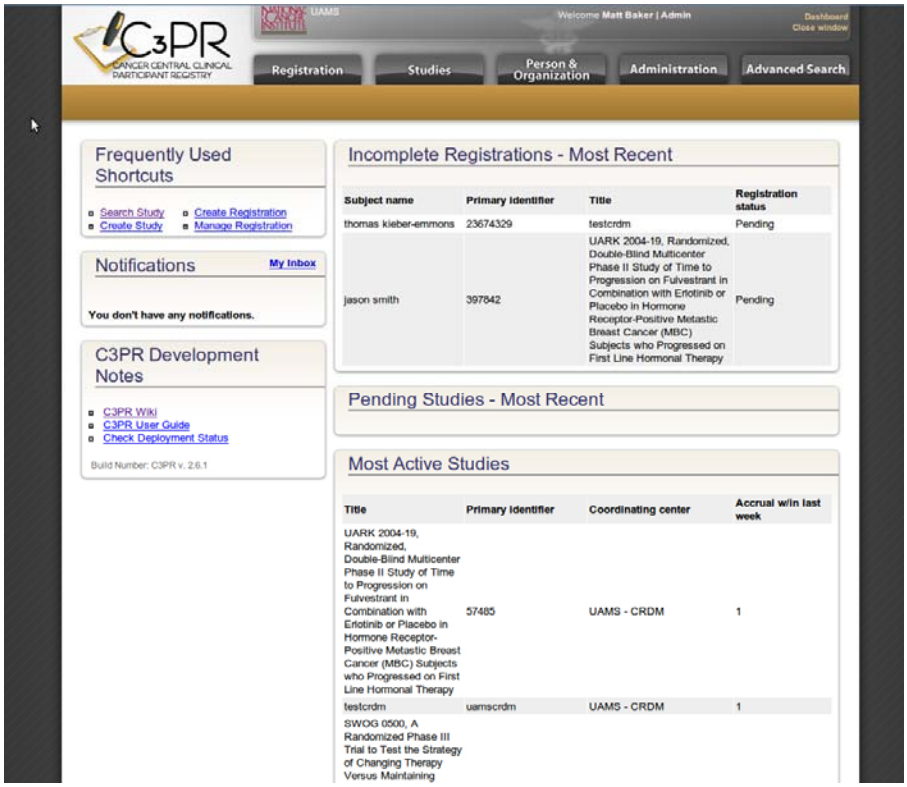
Study Management Tools

- Trial Search
- caBIG® C3PR
- caBIG® Patient Study Calendar
- OpenClinica
- caBIG®caAERS
- Labviewer
- LimeSurvey

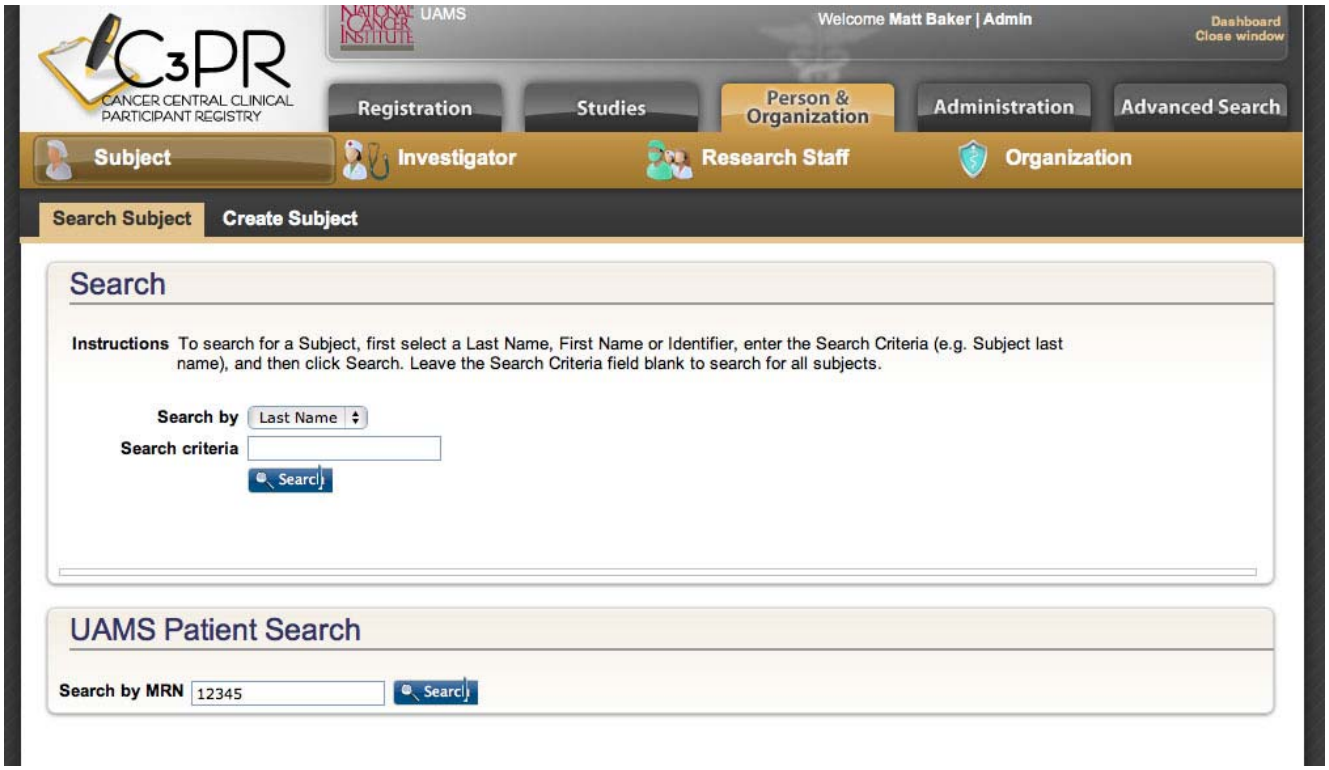
UAMS TrialSearch



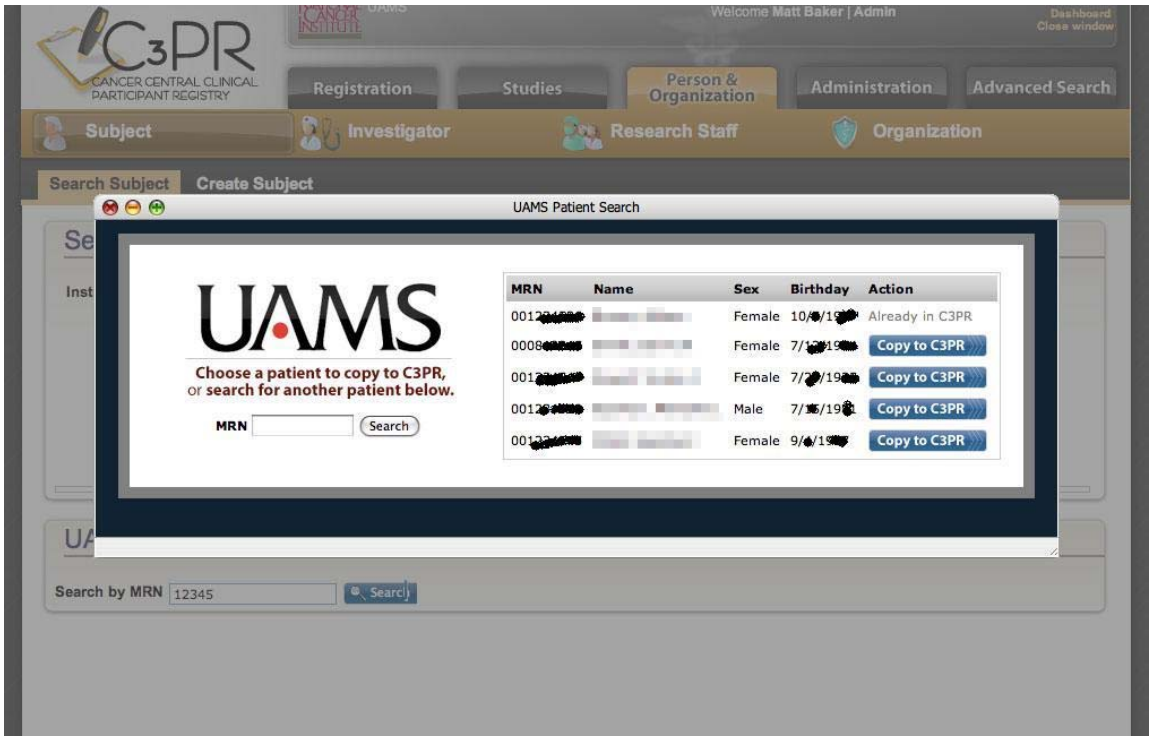
caBIG® Cancer Central Clinical Participant Registry



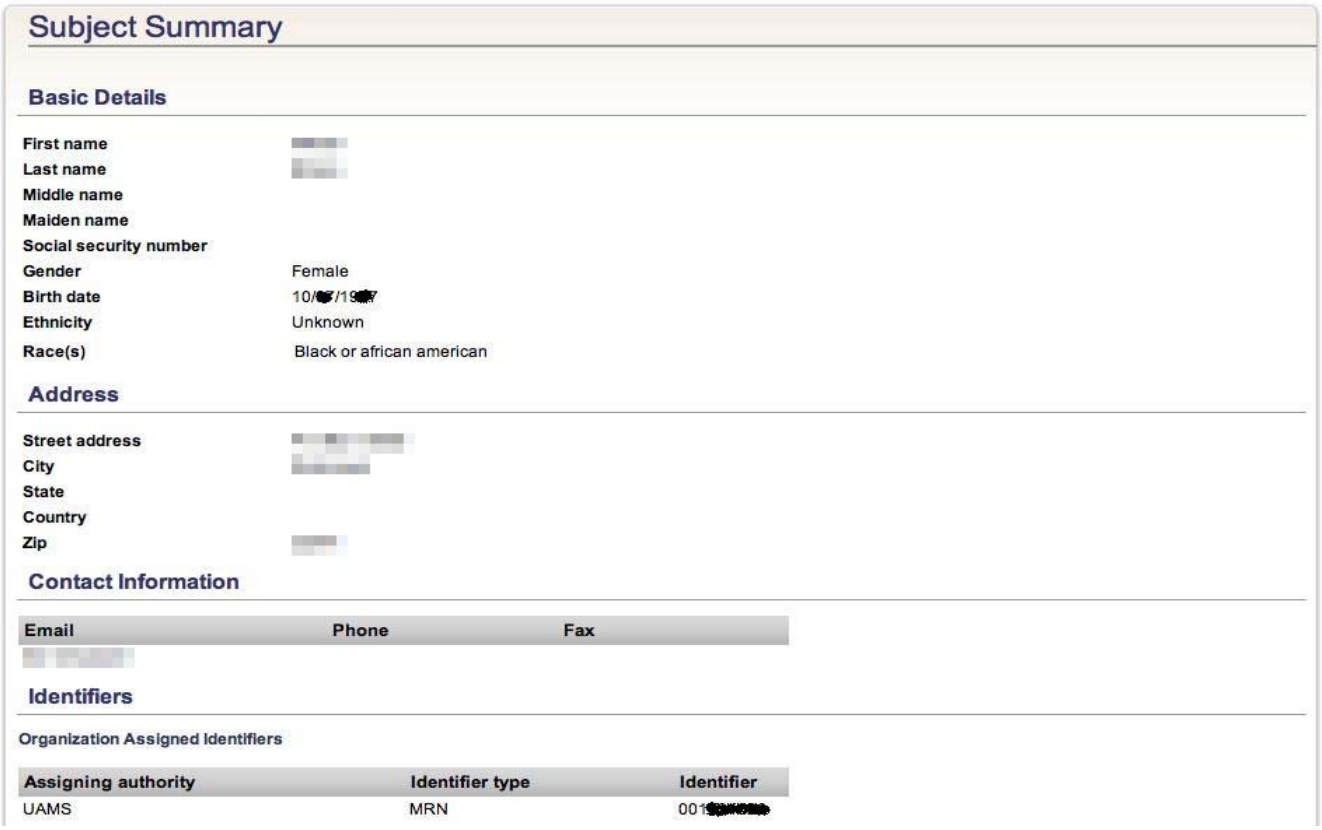
C3PR: Importing a Subject



C3PR: Importing a Subject (search)



C3PR: Subject is Imported



Subject Summary

Basic Details

First name	[redacted]
Last name	[redacted]
Middle name	
Maiden name	
Social security number	
Gender	Female
Birth date	10/[redacted]/19[redacted]
Ethnicity	Unknown
Race(s)	Black or african american

Address

Street address	[redacted]
City	[redacted]
State	
Country	
Zip	[redacted]

Contact Information

Email	Phone	Fax
[redacted]		

Identifiers

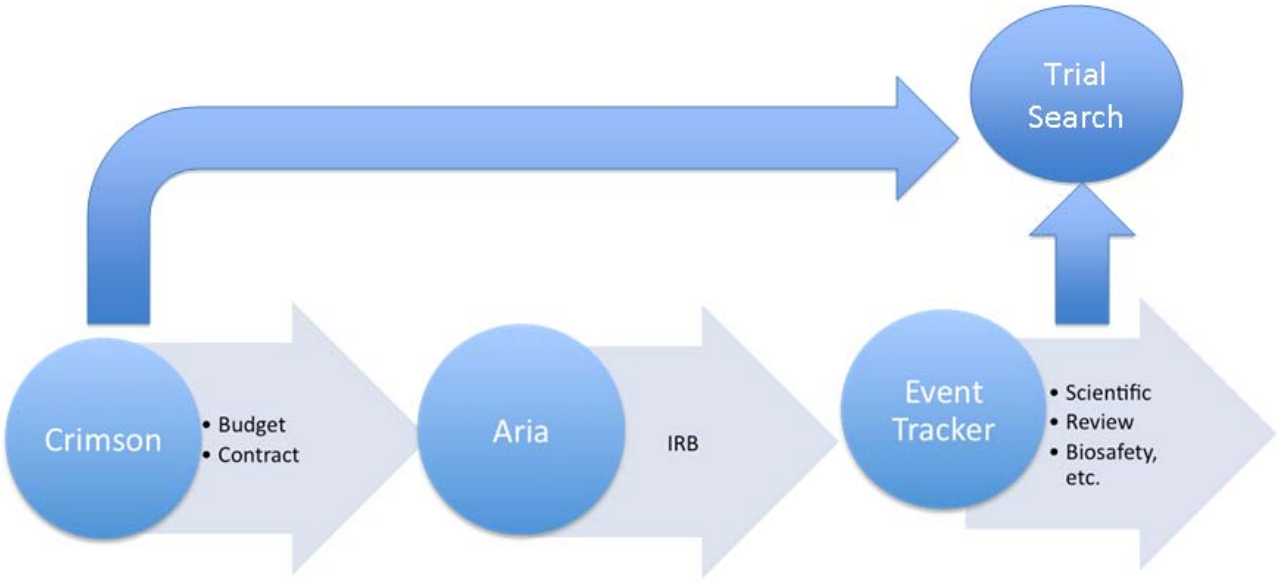
Organization Assigned Identifiers

Assigning authority	Identifier type	Identifier
UAMS	MRN	001[redacted]

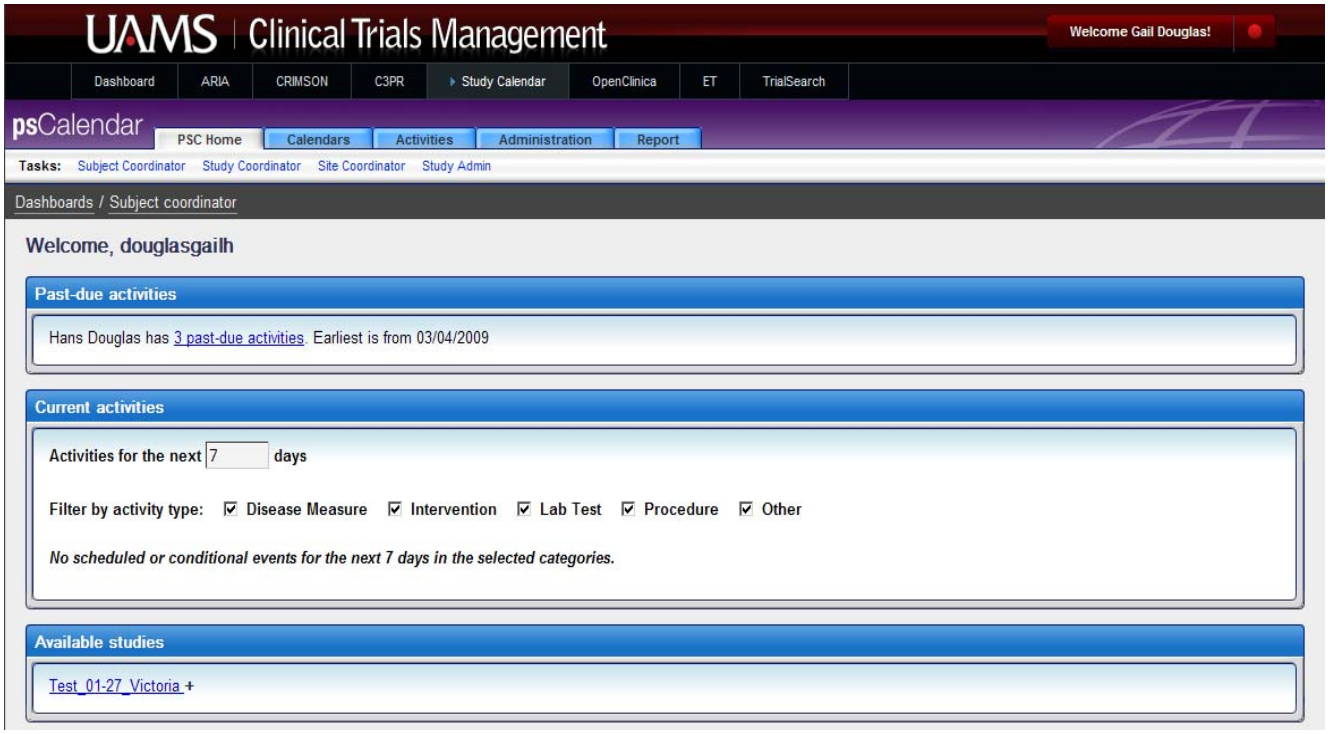
C3PR

- Currently 143 protocols loaded
- 1507 subjects registered
- Accomplished over 3 months
- 3 regulatory specialists
- 2 CRA's

Interaction of Tools

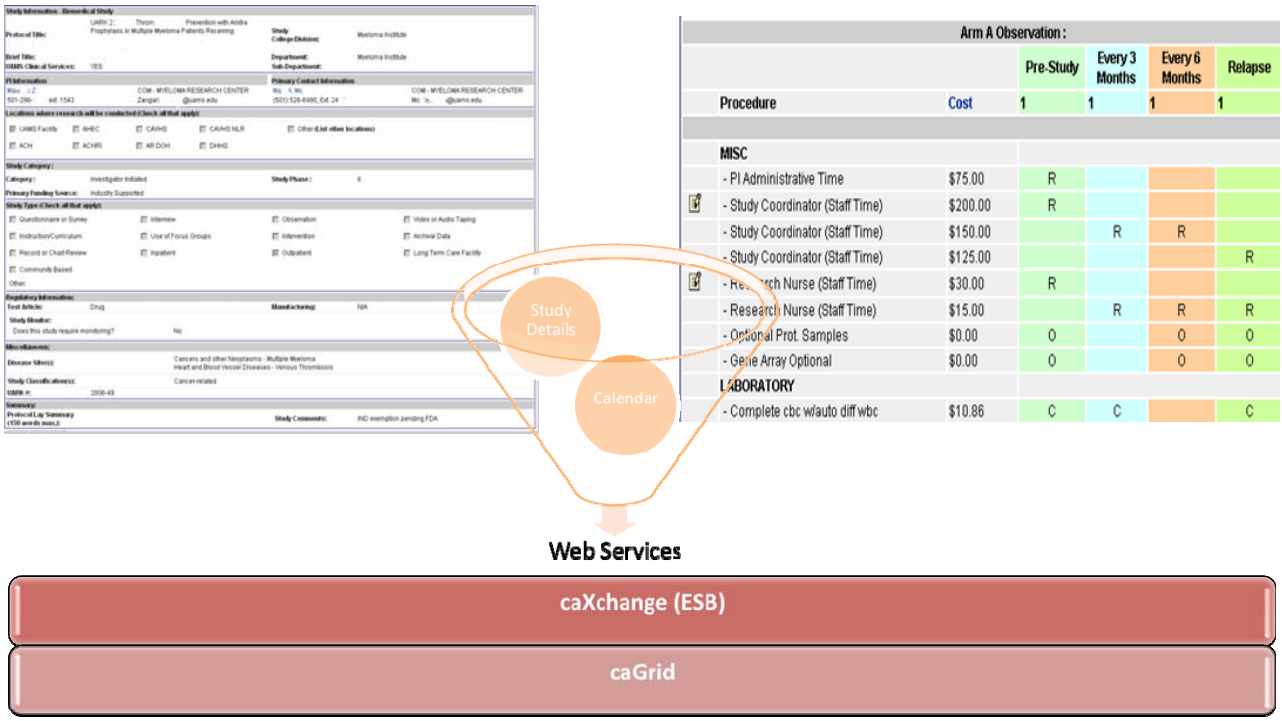


caBIG® Patient Study Calendar



Current Project

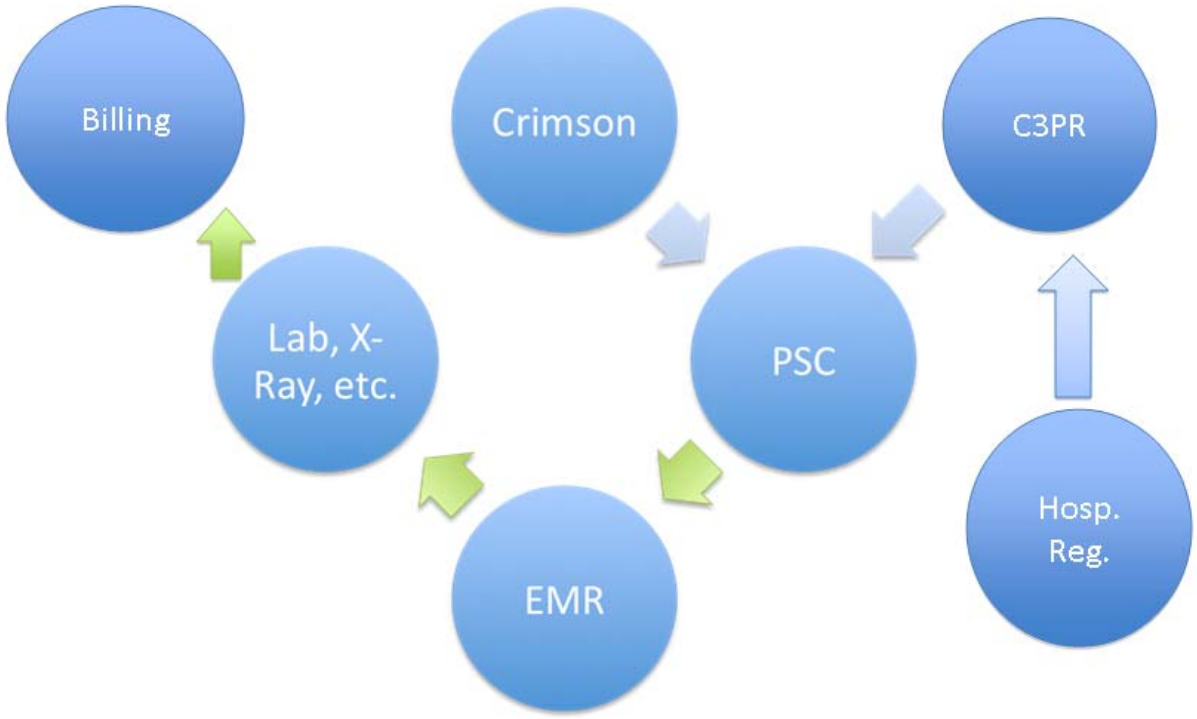
Interface UAMS CRIMSON Study/Budget to PSC



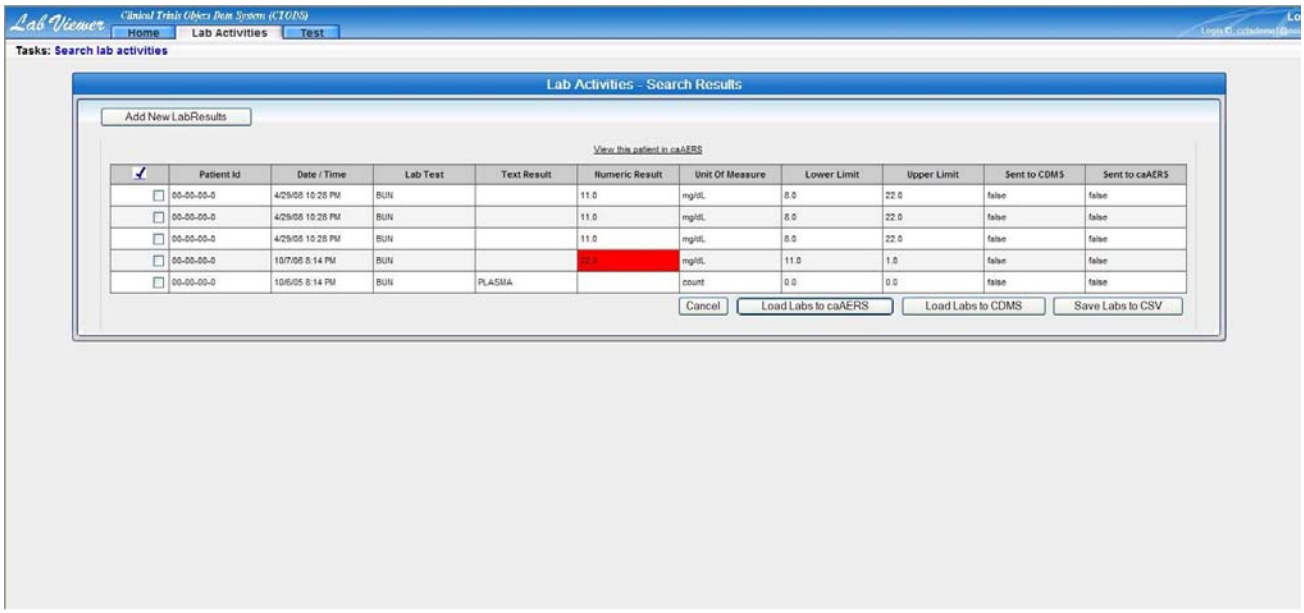
Crimson/PSC

- Protocol activities specified by CPT code in Crimson
- Not useful for clinical calendars
- “Translate” into Snomed
- Maintain tie to CPT code and charge type
- See calendar in EMR with Snomed designation
- Interface to orders and billing to allow ordering of studies with correct account number

Interaction of Tools

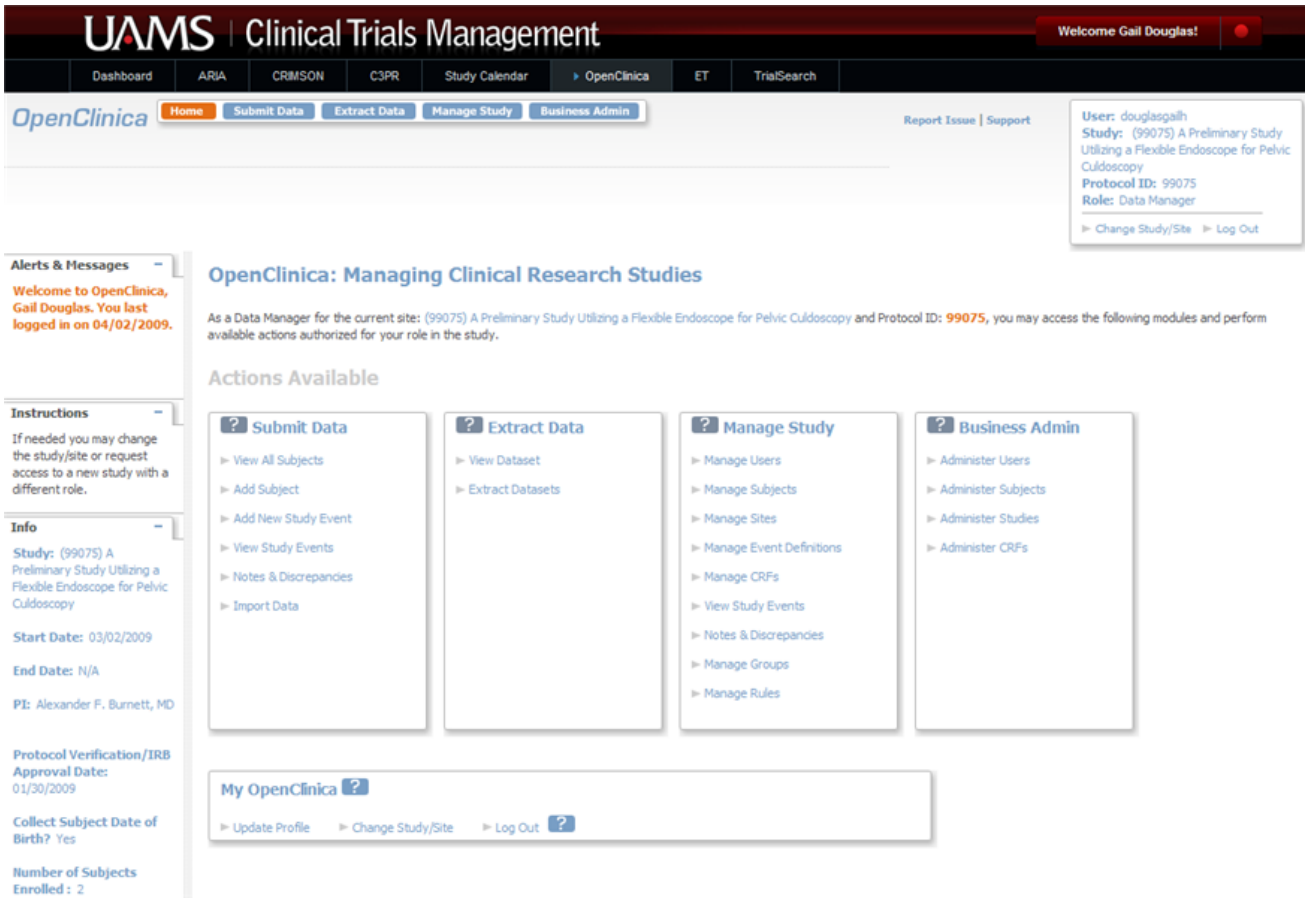


LabViewer (in progress)



- Written a program which utilizes the lab loader and LabViewer persistence modules in LabViewer which allows a manual parsing and insertion of HL7 v3 files into CTODS

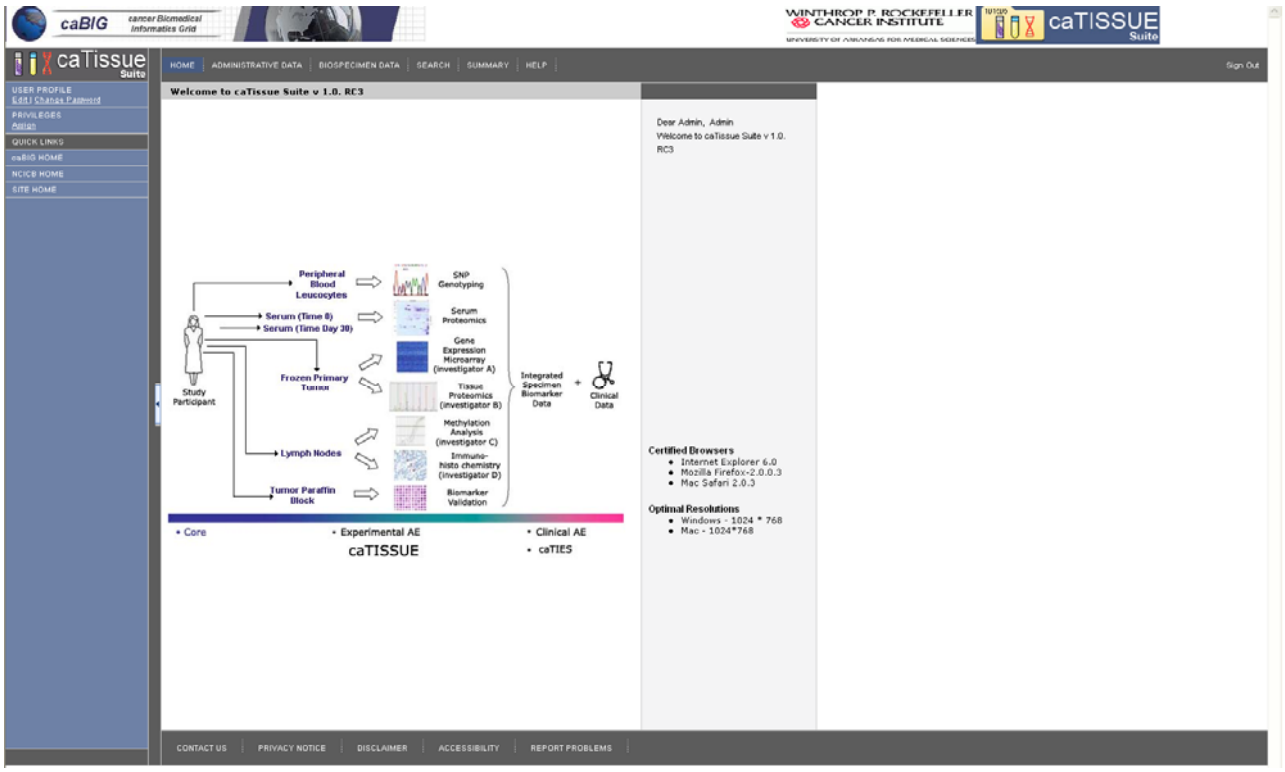
OpenClinica



Translational Components

- caBIG® caTissue Suite
- caBIG® caArray
- LimeSurvey

Biospecimen Implementation -caTissue Suite



caTIES

- We have
  - Written an application that reformats our HL7 messages to be compatible with the caTIES
  - run 2,000 path reports
- We are currently
  - Implemented a workflow that inserts de-identified path reports from caTIES to caTissue

Tissue Procurement Facility

Tissue Procurement Facility

- Quotes:
  - The “Help” tab has been great! It is user friendly and they assist us quickly if needed
  - caTIES pulls the pathology report and de-identifies it instantaneously
  - caTissue had problems initially attaching case with multiple organ specimens but IT was able to correct this.

caBIG® caArray

- Using File System for storing an experiment and array design files rather than database (Due to cost of storage)
- Developed an auto import (Upload) all the Terabytes of experiment files and store the meta data into database for later retrieval
- Eliminating the browser dependency in file uploading
- Eliminating the burden of individually uploading of files

Techniques for Progress

- Must keep the goal in mind
  - Must understand long term pay off
- Good communication
  - Face to face, frequent meetings
  - Access to the development team: “Help”
- Rewards for extra effort
  - Carefully designed incentives

Specific Research Initiatives

- Psychiatric Research Institue
  - 2 pilot studies
- C3PR (modified)
- OpenClinica
- Spit For the Cure®
  - LimeSurvey
  - caTissue

Specific Research Initiatives

- Myeloma Institute for Research and Treatment
  - caTissue
  - caArray
    - Stand alone client of uploading from Affimetrix
  - Developing:
    - caAERS with CTCAE version 4
    - proCTCAE for patient reporting

Initiatives

- National Children's Study
  - C3PR
  - OpenClinica
  - PSC
  - caTissue
  - LimeSurvey

Initiatives

- Expand to offer participation
  - Private practice partners
  - Community research partners
  - AHECS

People Who Did The Work

- Cancer Institute
  - Peter Emanuel, M.D.
  - Thomas Kieber-Emmons, Ph.D
  - Shirley Gray, M.S.
    - CCTO: Sandy Annis, Adam Hicks
- Research Support Center
  - Tom Wells, M.D., Julia Washam, R.N.
- Bioinformatics
  - William Hogan, M.D.

People Who Did The Work

- IT Development Team
  - Cheryl Lane
  - Umit Topaloglu, Ph.D.
  - Deniz Yayla, M.S.
  - Zhidan Feng
  - Rinku Saha, M.S.
  - Matt Baker
  - Jiang Bian, M.S.
  - Sree Konduri
  - Dan Sobkaviak

Healing Garden